1. INTRODUCTION

The Peristaltic Pump **RH-P120S** is a single channel pump for the use in laboratory and extensively in industrial applications where accurate flow rate is essential. Pumping action is done by a roller cage driven by D.C.motor.The motor and internal are almost independent of temperature. This pump has load and line compensation circuit. The rollers are made up of carbon filled nylon/S.S.316 for trouble free operation. The electronic circuit provides constant flow rate even there is line voltage or load variation.

2. CHECK LIST

Items included in the packing

1. Peristaltic Pump model **RH-P120S** - 1 No.

2. 230v,4 A Power chord with 3 pin plug - 1 No

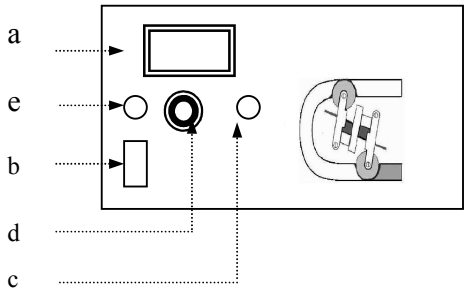
3. Connector for External Speed control - 1 No.
   (by 4 to 20mA current signal)

4. Tubing - 1 Mtr

5. Spare Fuses (1 Amps) - 2 No's

3.GENERAL DESCRIPTION.

3.1.FRONT PANEL



a. Digital Panel Meter

This seven segment LED display will show the RPM of the pump head. The RPM can be varied from **1 to 196.**

b. Mains ON/OFF Switch

This switch is used to ON/OFF the A.C.Supply to the pump. It has built-in indication

c. Auto/Manual switch

By changing this switch the pump can be driven either internally(using potentiometer) or externally(using 4…20 mA signal).

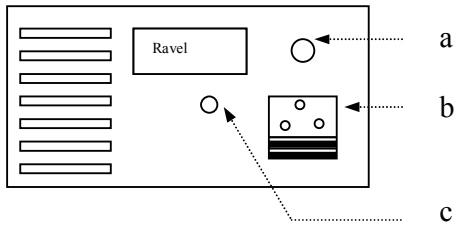
d. Speed variation pot

Using this 10 Turn potentiometer, the RPM of the pump head can be varied to get various flow rates. The corresponding RPM will be displayed in the digital panel meter.

e. CW/CCW Switch

Using this switch user can change the direction of rotation of the Pump head(pumping). It is mainly used for tube cleaning purpose. (Note: Continuous running in the reverse direction will reduce the tube life)

3.2. REAR PANEL



a. External signal input socket

Using this socket the 4…20 mA signal can be applied to vary the flow rate in Auto mode. Suitable adopter for this socket is provided along with the pump

b. A.C.Main socket with Fuses

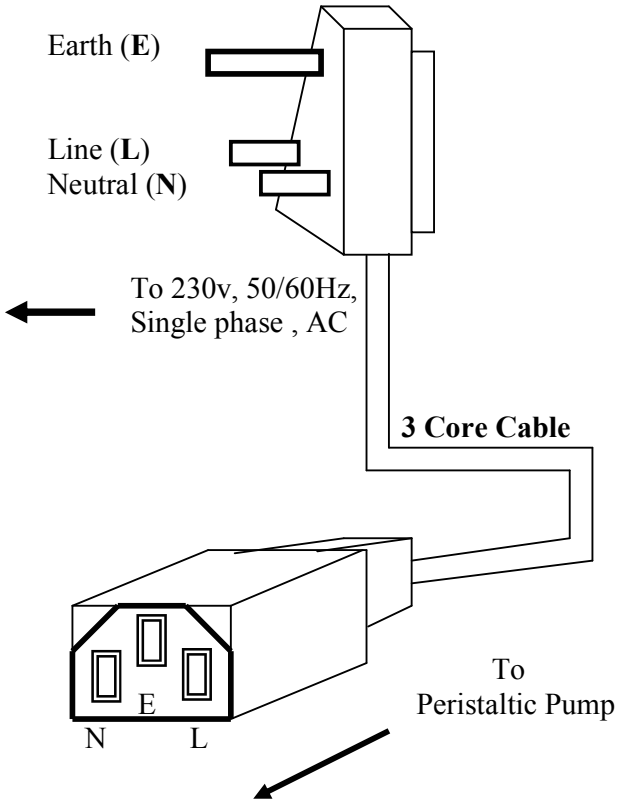
This socket accepts the supply of 230v, 50Hz AC. The socket has one operational and one spare fuses of rating 1 Amps. The operational Fuse protects the electronics and the motor in case of short circuiting.

c. CW/CCW Switch

Using this switch user can change the direction of rotation of the Pump head(pumping). It is mainly used for tube cleaning purpose. (Note: Continuous running in the reverse direction will reduce the tube life)

4. OPERATION

Ensure Proper Earth for the Pump



4.1. General

Before start running ensure the following

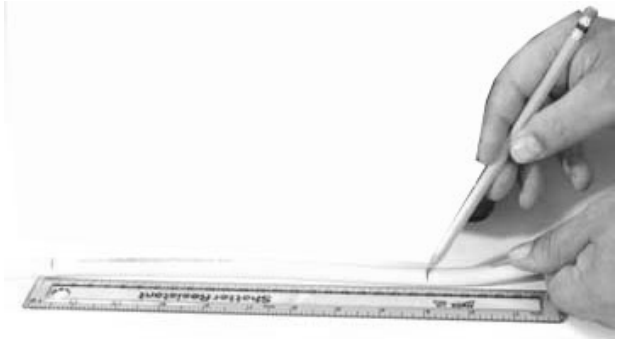
- Track and rollers should be clean
- Use suction and delivery pipe lines as equivalent to or larger than the diameter of pump tubing to minimise the friction losses.
- Delivery and Suction lined as short as possible. Minimise the number of bends.

4.2 Tube Selection

User should select appropriate tubing, which is compatible with the transferring medium chemically and physically.

4.3 .Loading the tube

Fitting the tube in the roller cage is a straight forward procedure requiring no specialised knowledge or expertise.



1. Mark 175 mm in the tubing. Ensure the marks should be present in the outside of the tube holders (top and bottom) after tube loading

2. Pull back the tube holding lever in the suction side, insert the tube and release the lever.

Step - 1

Step - 2

Step - 3

3. Rotate the roller cage in the clockwise direction so that the tube is automatically in its path.

4.Fit the tube in the delivery side of the tube holding mechanism as described in suction side.

5.Start the motor and confirm the smooth rotation of the rollers over the tube.

NOTE: The rollers are set for 1.5mm wall thickness tubes. If 1 mm wall thickness tube has to be used, Loosen the screws provided in the sides of both the roller holding plates uniformly by using the screw driver. Loosen the screws until required pumping pressure is achieved.

4.4.SETTING THE FLOW RATE

The flow rate can be varied by changing the speed using the potentiometer. The speed of the pump head can be varied from **10 to 196**. The approximate flow rate can be selected by using the output per revolution given below for various tubes.

The approximate ml/rev.:

1 mm I.D. - 0.2ml
2mm I.D. - 0.45ml
3mm I.D. - 1.0ml
4mm I.D. - 1.6ml
5mm I.D. - 2.7 ml

The RPM for the required flow rate can be calculated as follows

$$\text{RPM} = \frac{\text{Flow rate(ml/min)}}{\text{ml/rev}}$$

Example:

For a flow rate of 100ml/min in 3mm I.D.tubing

$$\text{RPM} = \frac{100}{1.0} = 100 \text{ (App.)}$$

The exact quantity of the flow with respect to the RPM has to be measured at the actual environment. Using this output calculate the exact output per revolution and use this calibrated value for further settings.

5.MAINTENANCE

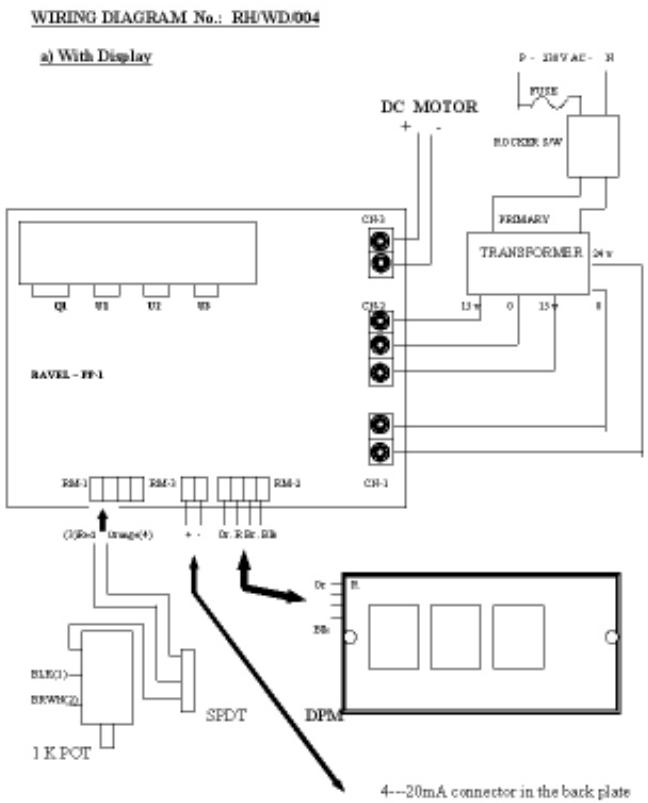
The peristaltic pump **RH-P120S** does not require any regular service or maintenance other than replacement of worn-out tubing.

It is advisable to replace the tubing after 300 to 500 Hours depending upon the environment , to minimise the risk of tubing breakage during operation.

6. LUBRICATION

No lubrication is required as the internal mechanisms are lubricated for life. Lightly lubricate the rollers whenever it is necessary.External lubrication of tubing is recommended for longer life of the tube.Silicon grease(midland silicon MS4 or equivalent)can be used with advantage on all materials except silicon rubber.Glycerine and other non-solvent lubricants can be applied to silicone rubber and other elastomers.

7. WIRING DIAGRAM



8.TECHNICAL SPECIFICATIONS

No. Of Channel	:	One
Flow Rate	:	120ml/Hr. to 24Lit/Hr.
RPM	:	10 to 196
Tubing	:	1 to 5mm I.D.tubing (with 1 or 1.5mm wall thickness)
Motor	:	24v PMDC motor
Pressure	:	Upto 2 Kg/Sq.Cm
Supply	:	230v, Single phase AC
Temp.range	:	0 to 50 deg.C
Dimension	:	130 x 225 x 280mm (H x W x D)
Weight	:	8 Kgs(Approx.)

PERISTALTIC PUMP

MODEL RH-P120S

USER'S MANUAL

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